

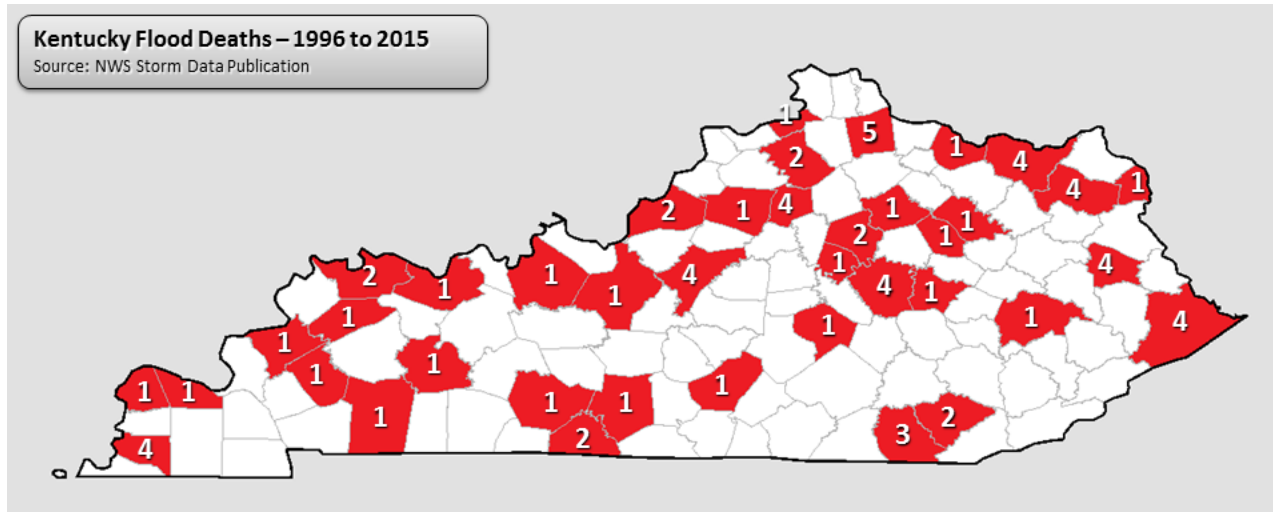
Floodplain Basics



4/19/2018

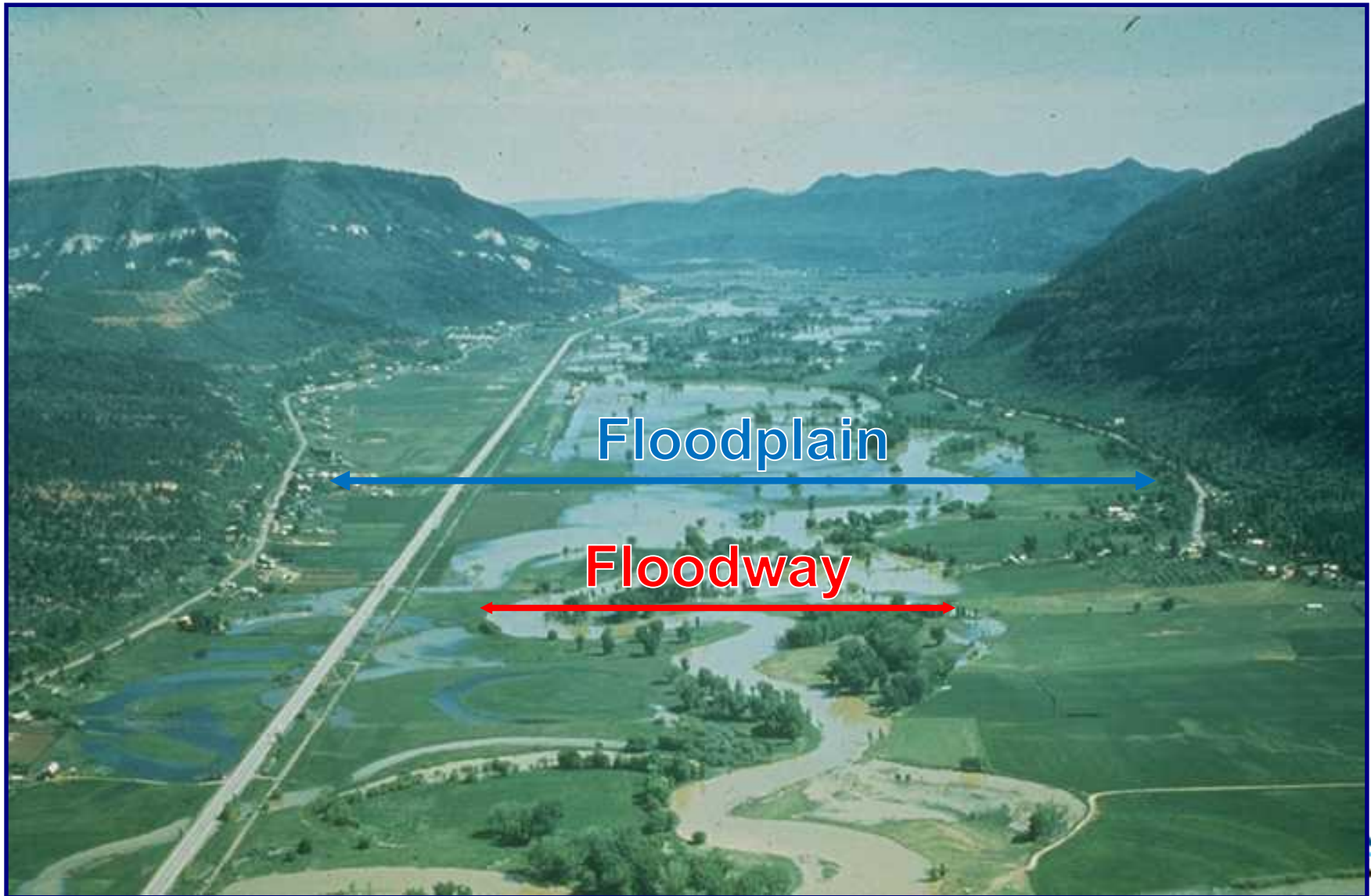
Why do we care about floodplains?

- KY has had 76 flood deaths from 1996 – 2015
- KY has 1% of the U.S. population but accounts for 5% of U.S. flood deaths since 1996
- 40 Kentucky counties have experienced deadly floods since 1996



<http://www.weather.gov/jkl/flooddeathhistory>

What is a floodplain?



Floodplain Management

- Comprehensive efforts to make communities more resilient
- Local ordinances, planning efforts and risk management efforts
 - Stormwater
 - Infrastructure
 - Mapping
 - Education and Outreach
- Federal, state, regional and local partnership
- Minimum requirements



- At the local level, floodplain management should be viewed as a public safety program



A car can easily be carried away by just two feet of water.

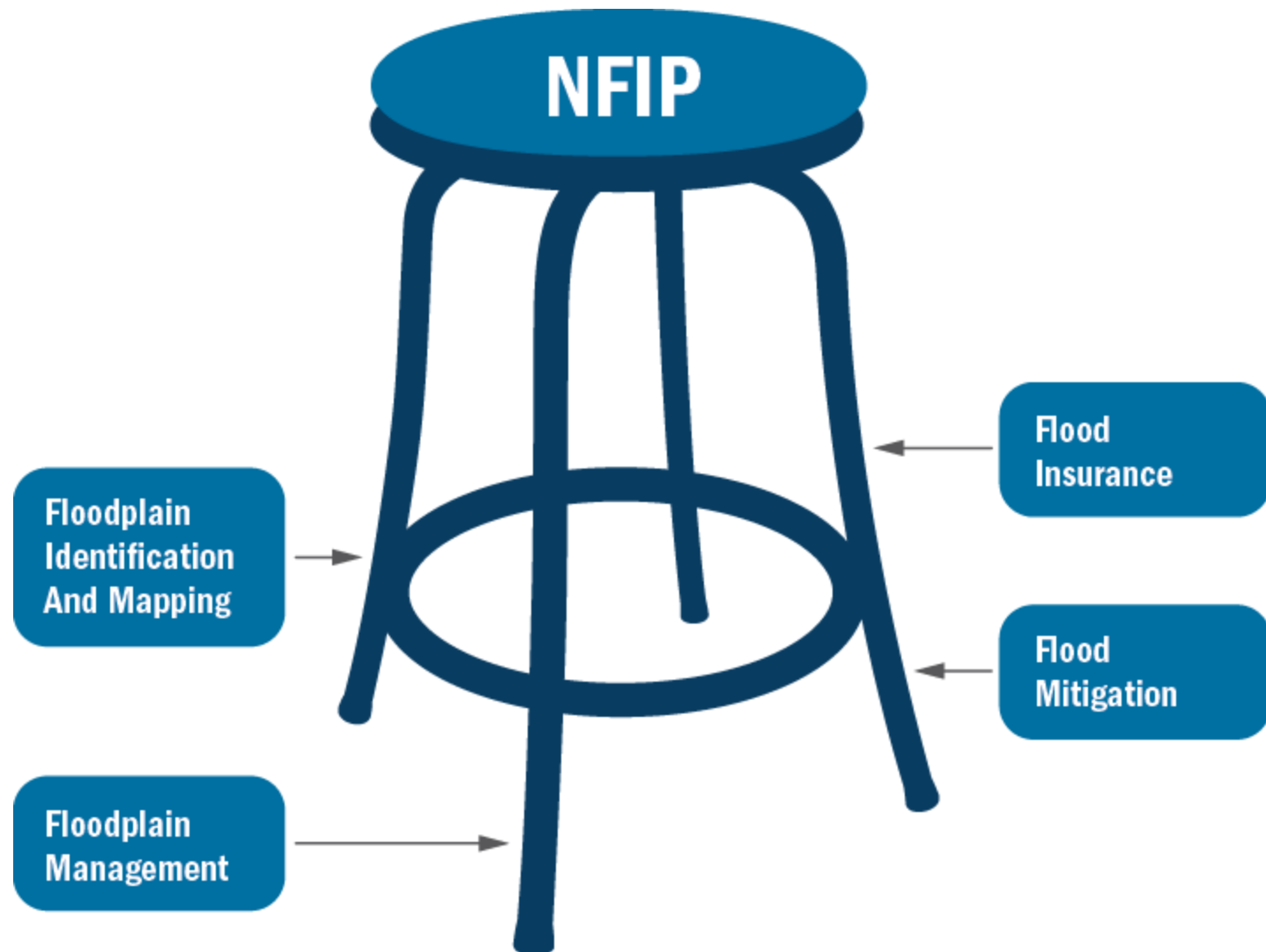
The National Flood Insurance Program

A voluntary program based on a mutual agreement between the federal government and the local community:

In exchange for **adopting and enforcing** a Floodplain Management ordinance, federally-backed flood insurance is made available to property owners throughout the community



The National Flood Insurance Program



Flood Insurance

- Required for all structures with a federally backed mortgage in SFHA
 - Lenders generally make final determination
- Recent legislation
 - BW12
 - HFIAA
 - More information
 - <https://www.fema.gov/national-flood-insurance-program/flood-insurance-reform>
 - www.kymitigation.org
 - www.floods.org

Identifying Flood Risk



Tools



FEMA



FEMA Map Service Center

- Source for all public FEMA Flood Hazard products
 - Flood Insurance Rate Maps (FIRMs)
 - Flood Insurance Studies (FISs)
 - Letters of Map Change (LOMCs)
 - Risk MAP non-regulatory products
- Search by location (State, County, City, address, or Lat/Long.) to get the appropriate product

<https://msc.fema.gov/portal>



FEMA Map Service Center

Search Results—Products for **FRANKFORT, CITY OF**

[Show ALL Products »](#)

The flood map for the selected area is number **21073C0109E**, effective on **12/21/2017** [?](#)

DYNAMIC MAP



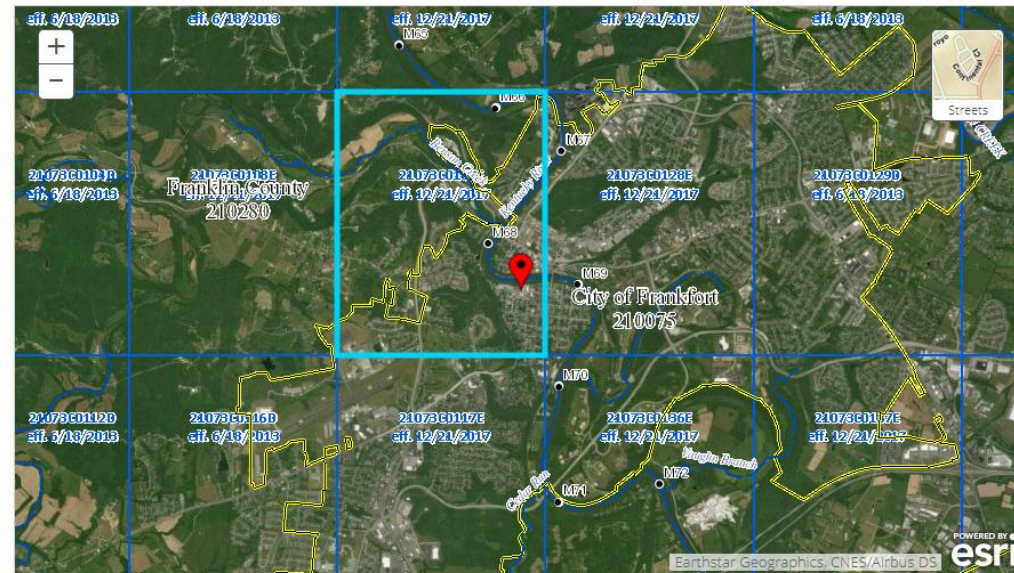
MAP IMAGE



Changes to this FIRM [?](#)

- Revisions (0)
- Amendments (0)
- Revalidations (1)

You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. NOTE: Please be sure to enable popups for this site.



- MAP PANELS
- ☐ Digital Data Available
 - ☐ No Digital Data Available
 - ☐ Unmapped

NO SCREEN
Area of Minimal Flood Hazard Zone X
Effective LOMRs

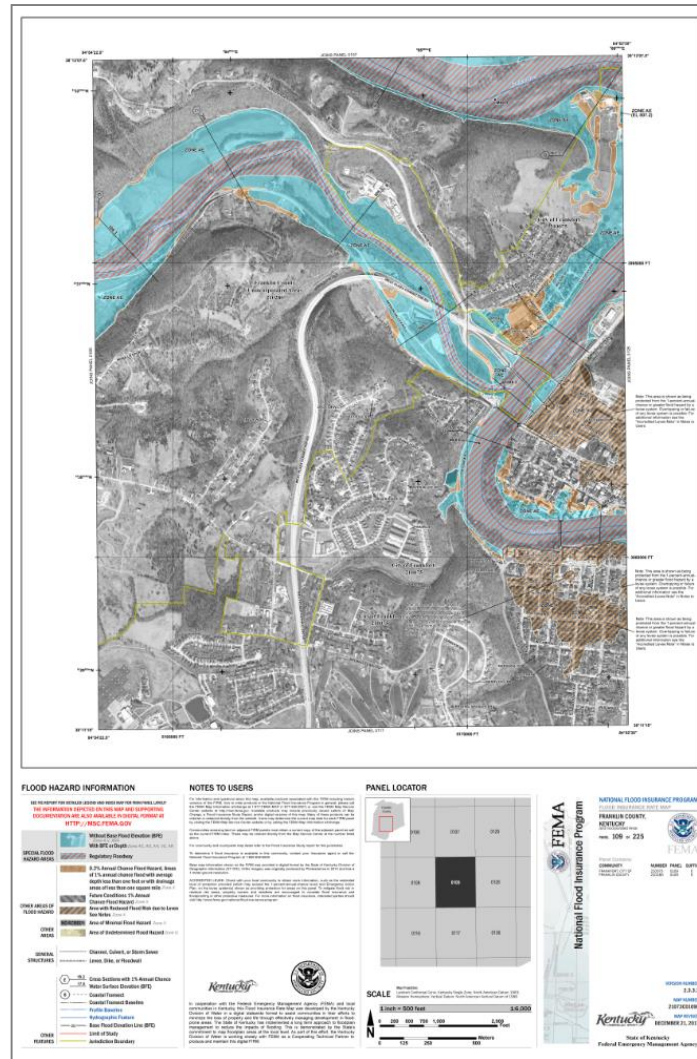
SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE)
Zone A, V, AE, AH
- With BFE or Depth
Regulatory Floodway Zone AE, AO, AH, VE

0.2% Annual Chance Flood Hazard, Ar
of 1% annual chance flood with avert;
depth less than one foot or with drain
areas of less than one square mile

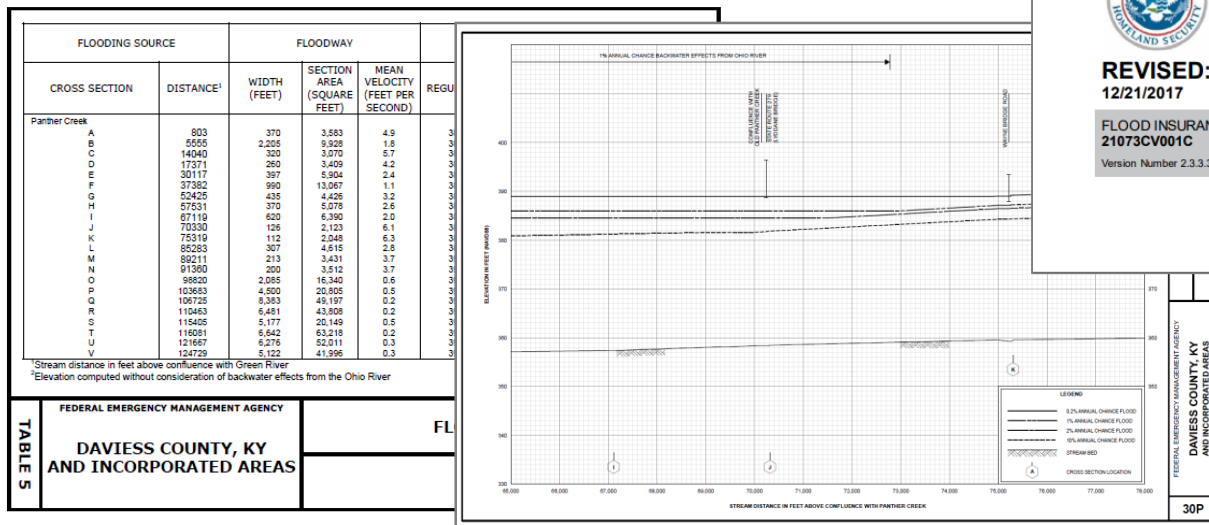
- OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
Water Surface Elevation
 - 17.4 Coastal Transect
Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - Coastal Transect Baseline
 - Profile Baseline

Flood Insurance Rate Map (FIRM)



Flood Insurance Study (FIS)

- Provides technical data about the flood study
- Summary of Discharges, Flood Elevation Profiles, Floodway Data Tables
- Pertinent references for the flood study



FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 2

FRANKLIN COUNTY, KENTUCKY

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
FRANKFORT, CITY OF	210075
FRANKLIN COUNTY UNINCORPORATED AREAS	210280

REVISED:
12/21/2017

FLOOD INSURANCE STUDY NUMBER
21073CV001C

Version Number 2.3.3.3



FEMA Map Service Center

Search Results—Products for **FRANKFORT, CITY OF**

[Show ALL Products »](#)

The flood map for the selected area is number **21073C0109E**, effective on **12/21/2017** [?](#)

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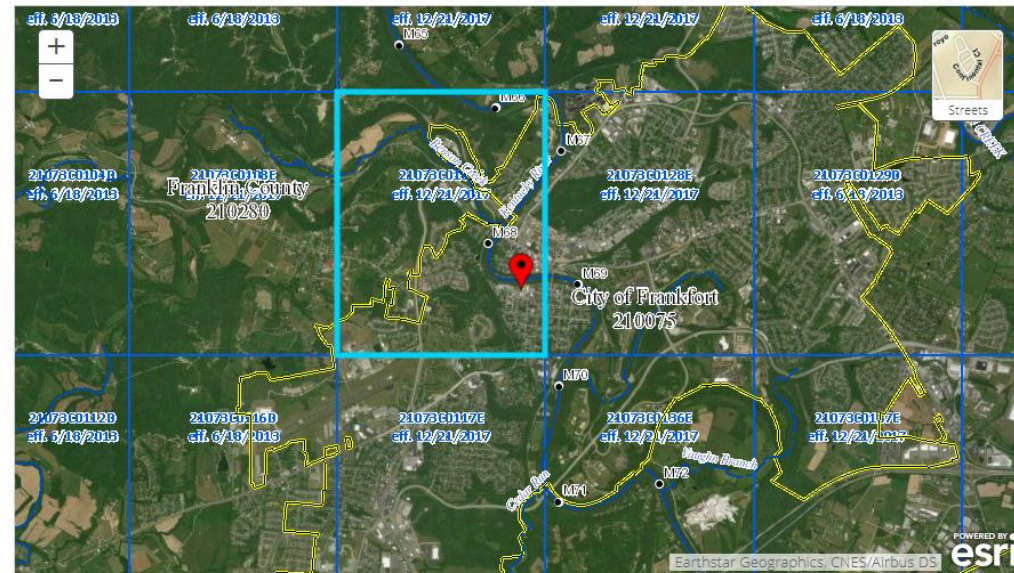
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FEMA GeoPlatform ArcGIS Online

- FEMA's National Flood Hazard Layer (NFHL)
 - National source for All Digital FIRM layers
 - Includes LOMC locations and dates
 - Links to download LOMC documents
 - DFIRM County GIS Data download
 - Links to an image file of the effective panels
 - Designed to work with ArcMap projects

<http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30>



KDOW Watermaps

- Risk MAP Portal
- Water Health Portal
- KY Watershed Viewer
- KDOW Story Map Gallery
- HAB Viewer
- Special Use Waters
- Draught Viewer
- FEMA Flood Map Project Update Map



A wide variety of water-specific web maps, applications, and services are being showcased from this Portal. KDOW has compiled these maps as a service to our customers using information from various sources. KDOW cannot ensure that the information is accurate, current or complete. Neither the information presented nor the maps themselves are official documents.

Portals, Viewers and Story Maps



Risk Map Portal ▼



Water Health Portal ▼



KY Watershed Viewer ▼



Story Map Gallery ▼



HAB Viewer ▼



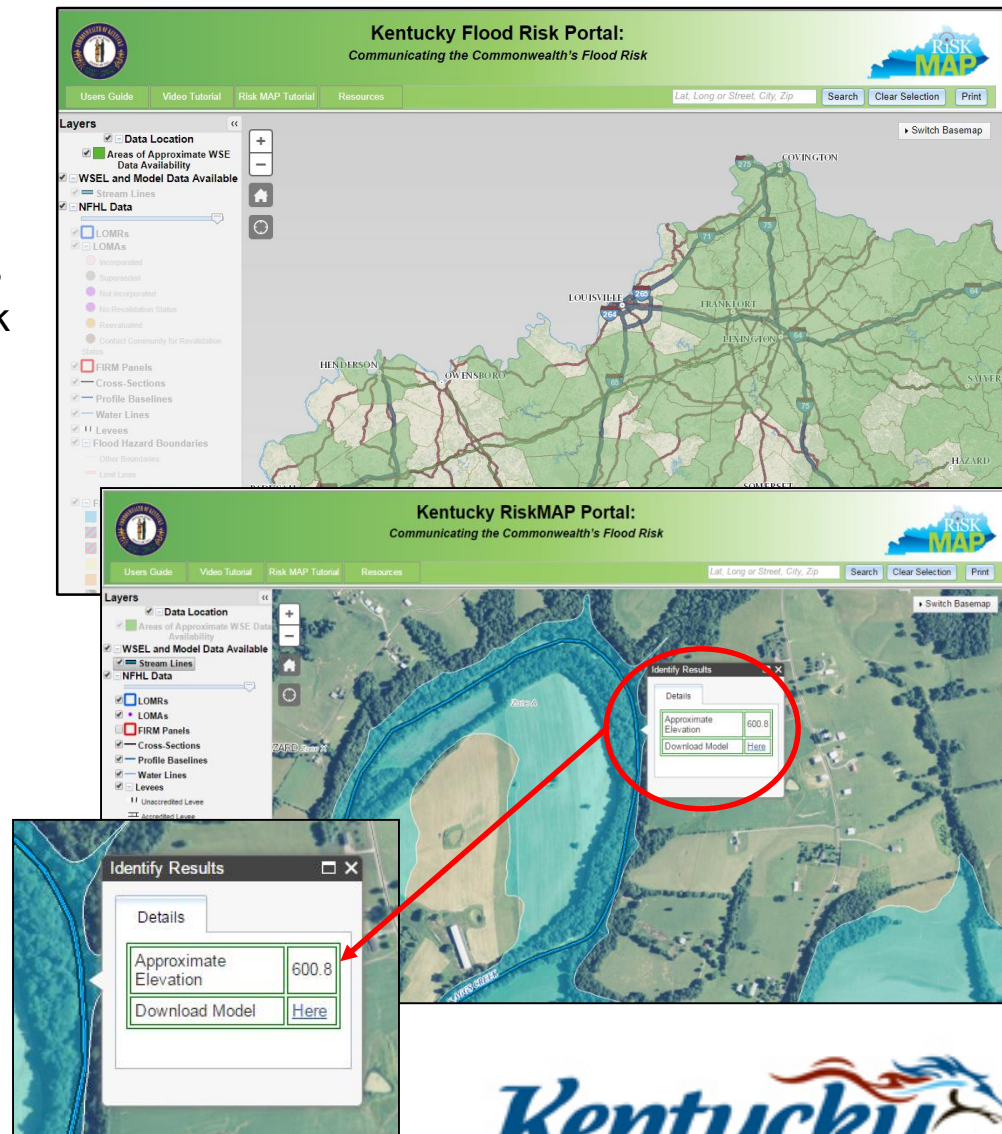
Special Use Waters ▼

<http://watermaps.ky.gov>

Risk MAP Portal

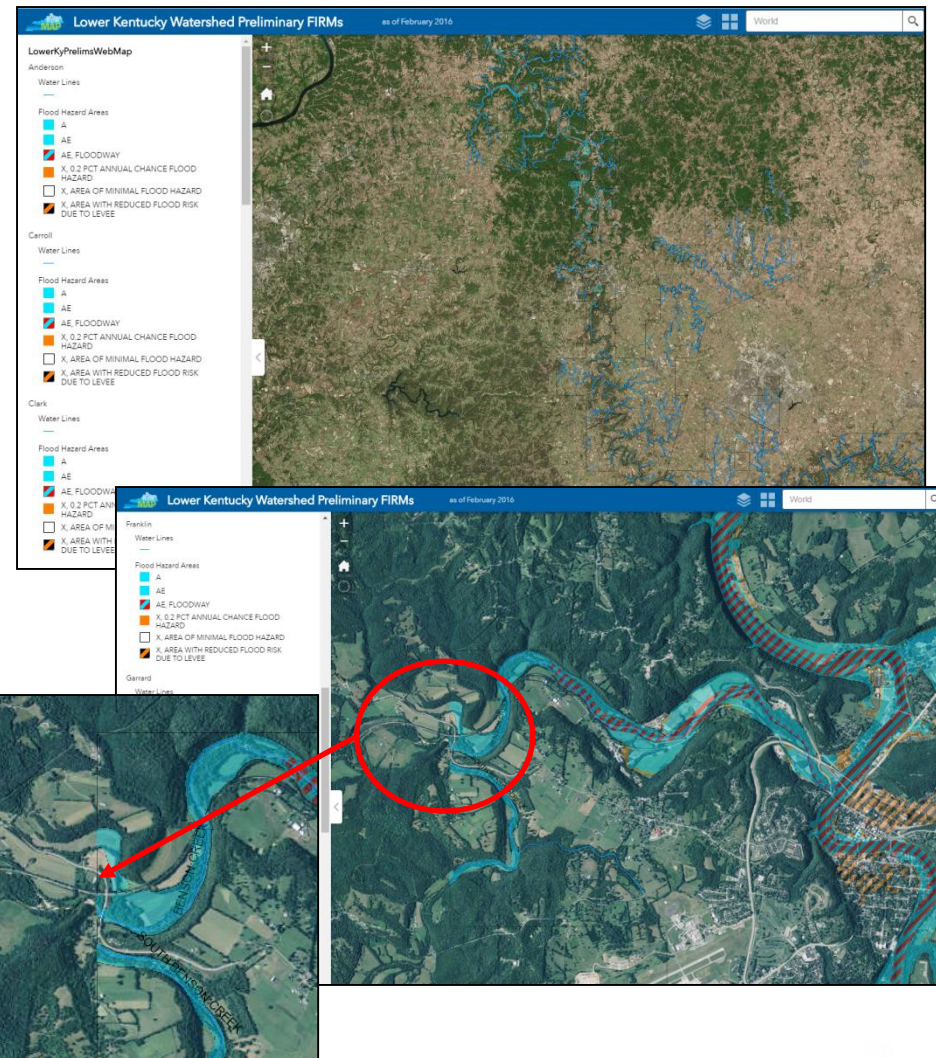
- Statewide floodplains in a single map
 - Displays the same floodplain as the FEMA GeoPlatform Map
- Phase I: Zone A BFE (80+ counties)
 - 1% annual chance BFE determinations in the A Flood Zones with a simple click on the stream centerline
 - Hydrologic & Hydraulic reports and models available for download
 - FIS and Shapefiles also available
- Phase II and Beyond
 - Hydraulic models and BFE determination available statewide
 - Depth grids and other RiskMAP products
 - Dam safety information

<http://watermaps.ky.gov/RiskPortal/>



FEMA Flood Map Project Updates

- RiskMAP is in the process of revising the floodmaps for all watersheds in the Commonwealth
 - Risk Mapping, Assessment, & Planning
- Preliminary maps for communities to review
 - Not Regulatorily Effective
- Two currently available for review
 - Lower Kentucky Watershed
 - Lower Cumberland Watershed
- Not all FIRMs are updated during this process
- Once maps complete the 'Due Process' phase, communities are issued paper maps. Maps then included in the RiskMAP Portal



<http://watermaps.ky.gov>

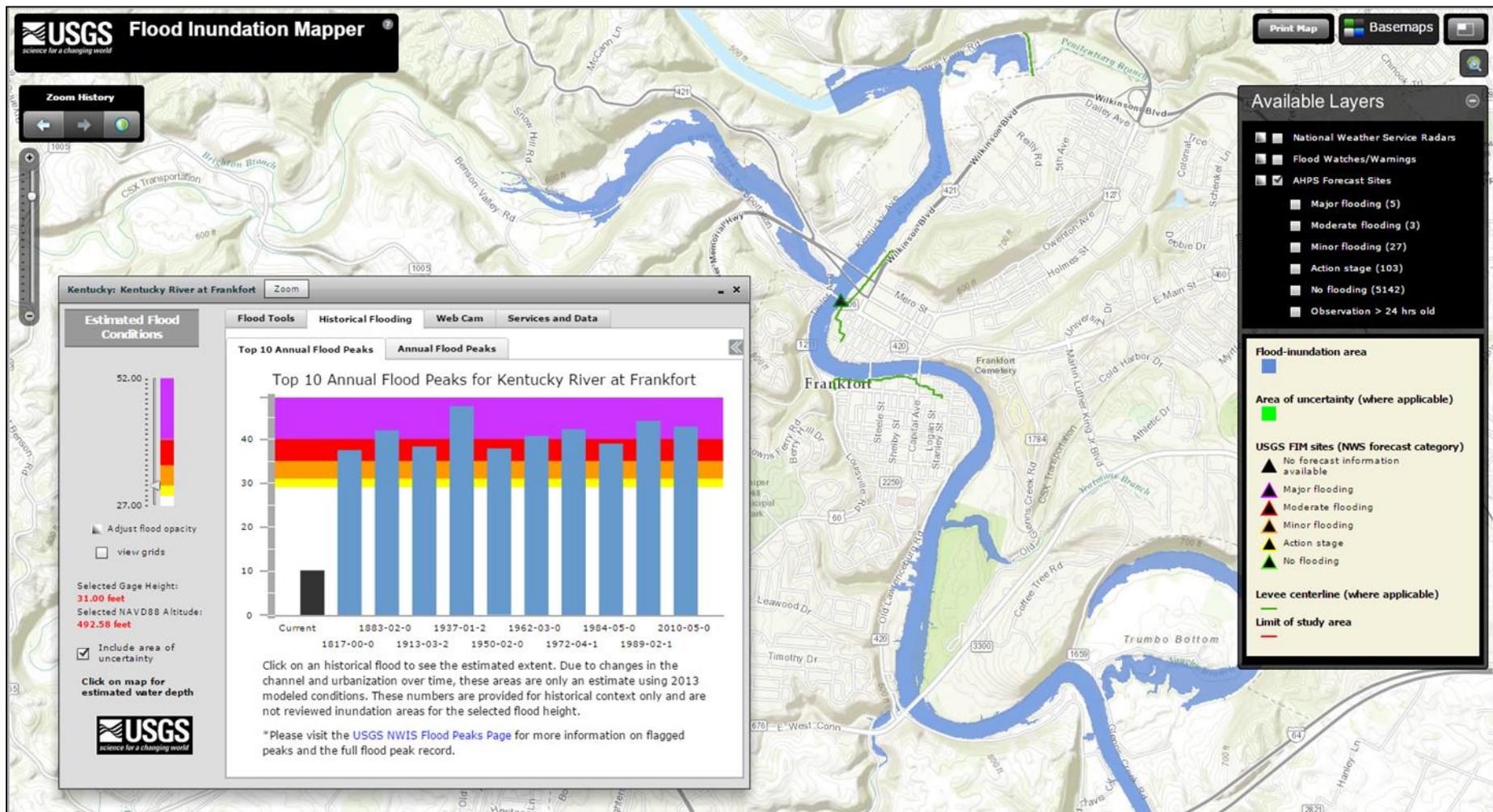
U.S. Geological Survey Flood Inundation

- The USGS Flood Inundation Mapping Program strives to help communities understand flood risks and make cost-effective mitigation decisions.
- The USGS works with the National Weather Service, U.S. Army Corps of Engineers, and the Federal Emergency Management Agency to ensure the quality and consistency of flood inundation maps nationwide.
- **Inundation maps can be used for:**
 - Preparedness - "What-if" scenarios
 - Timely Response - tied to real-time gage and forecast information
 - Recovery - damage assessment
 - Mitigation and Planning - flood risk analyses
 - Environmental and Ecological Assessments - wetlands identification, hazardous spill cleanup

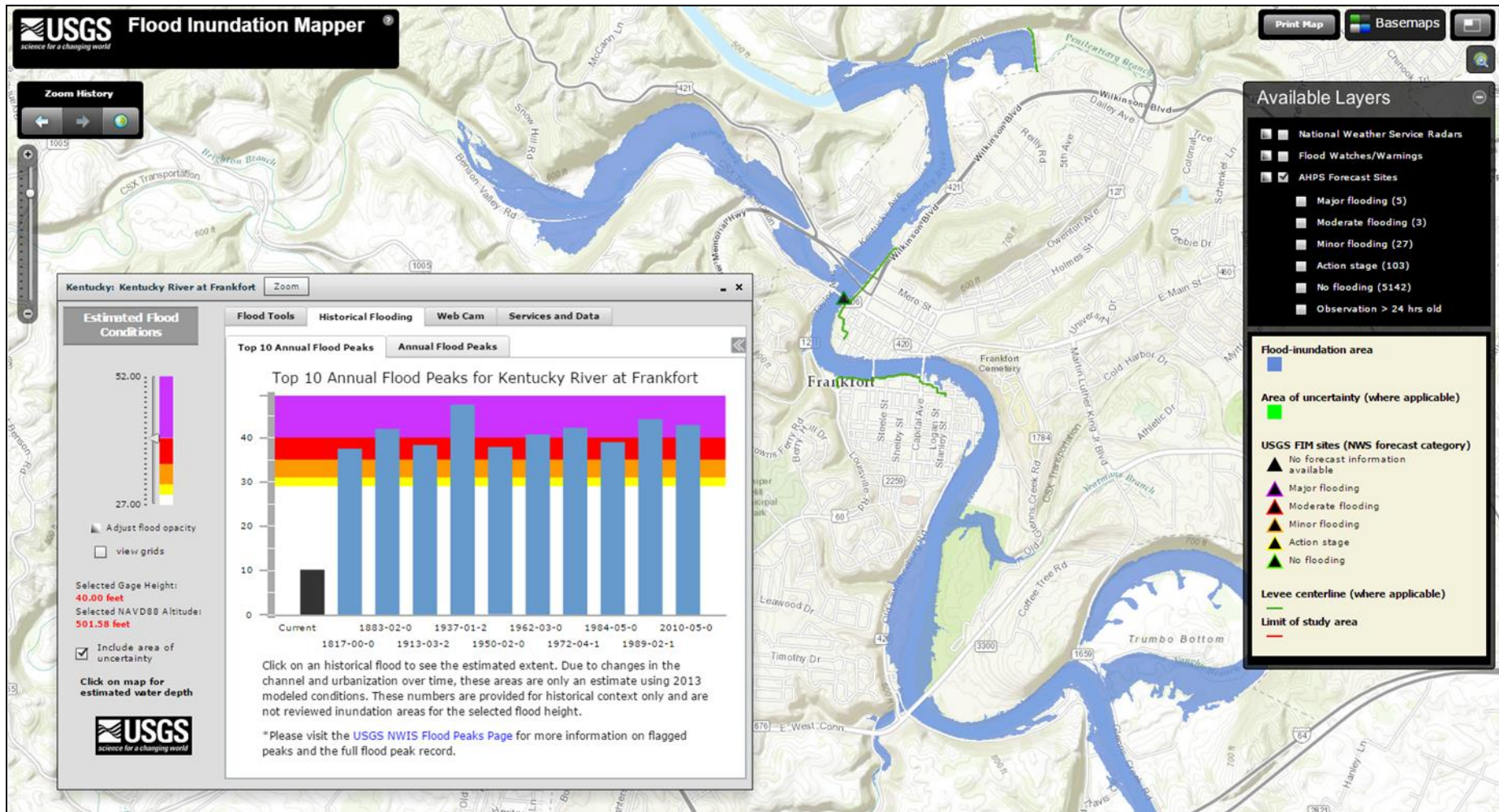
http://water.usgs.gov/osw/flood_inundation/



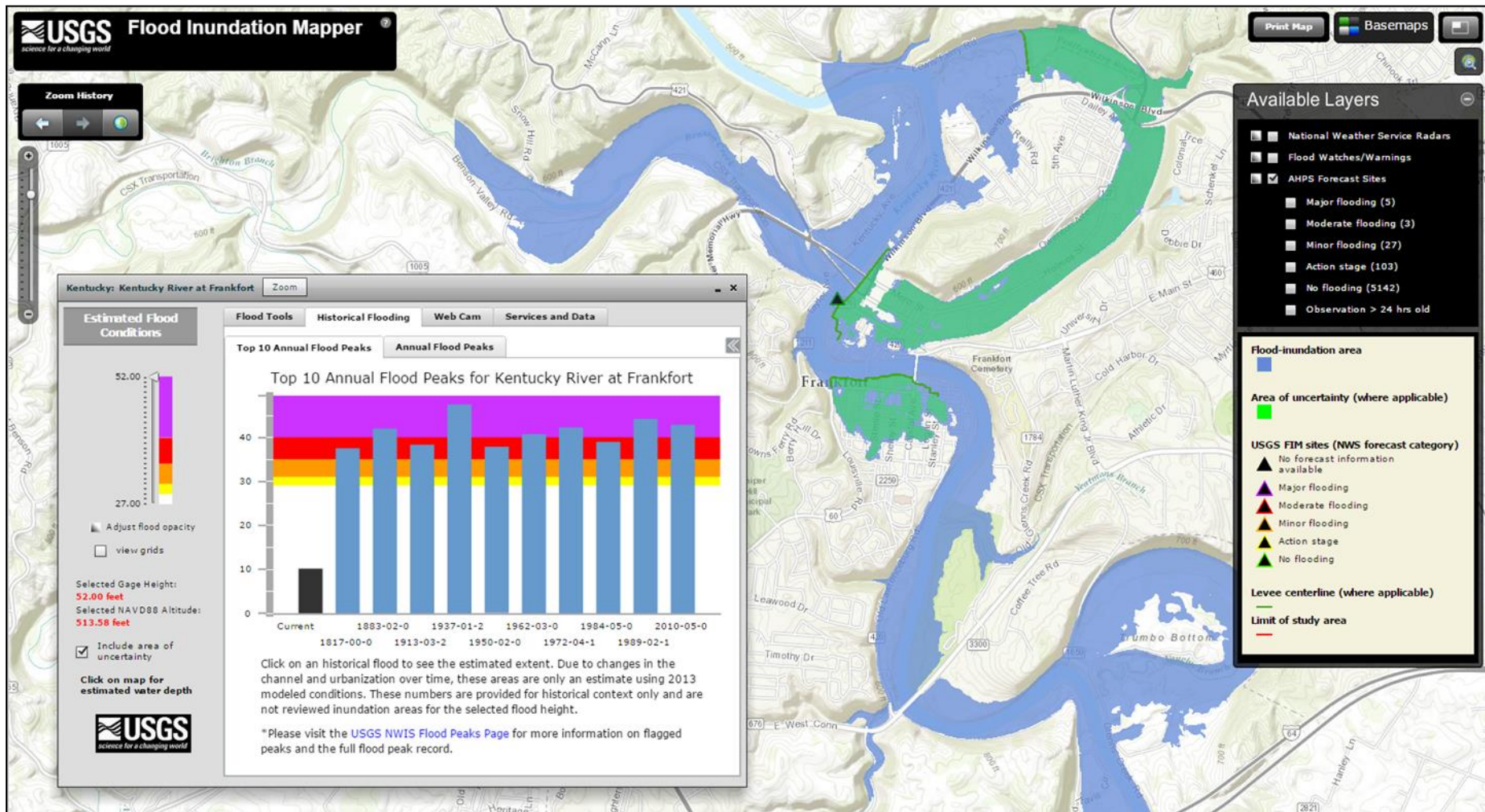
U.S. Geological Survey Flood Inundation



U.S. Geological Survey Flood Inundation



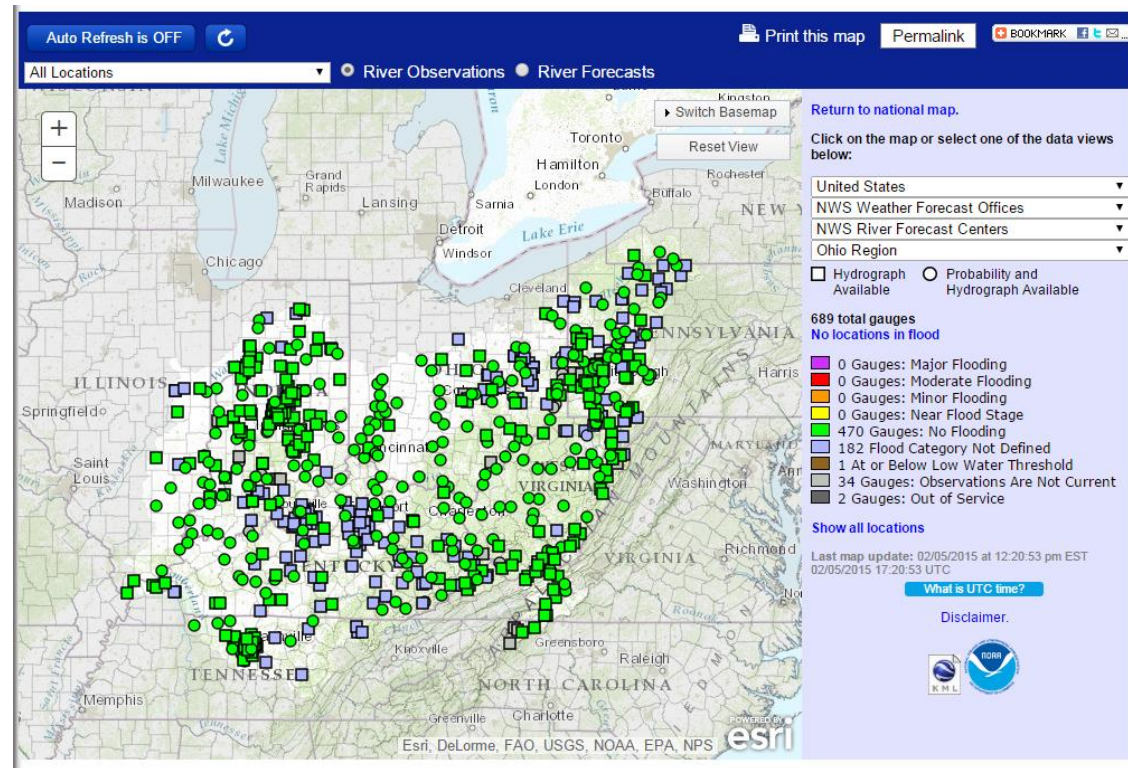
U.S. Geological Survey Flood Inundation



National Weather Service AHPS

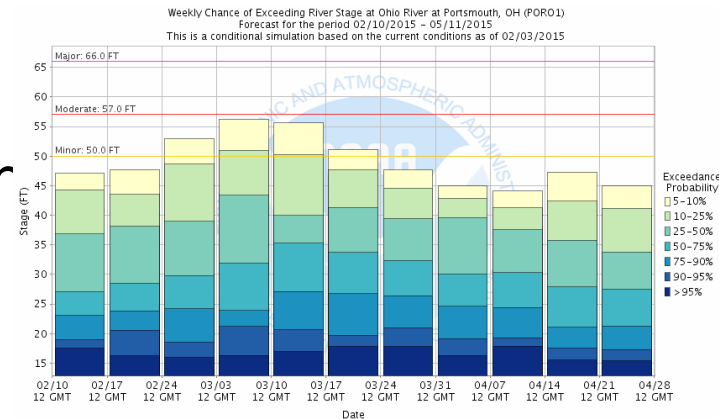
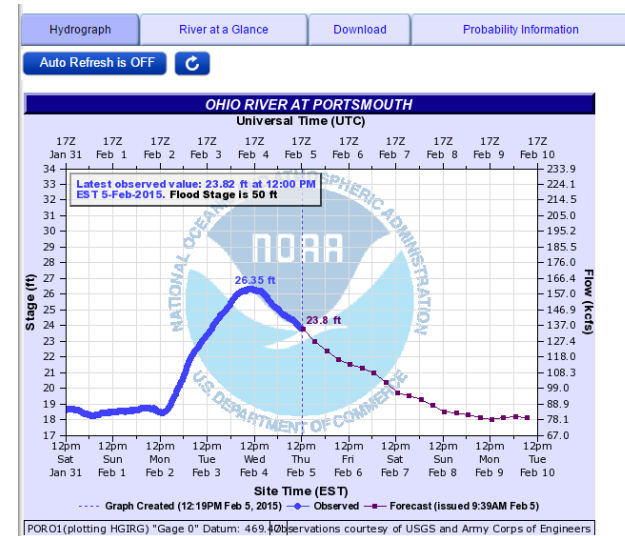
- Advanced Hydrologic Prediction Service (AHPS)
 - Kentucky located in the Ohio Region

<http://water.weather.gov/ahps/>



National Weather Service AHPS

- Individual Gage Data
 - Hydrograph
 - current & near future water level
 - Probability Graph
 - Chance of flooding over the next few months
 - River at a Glance
 - View multiple gages information on same page
 - Gage Location Attribute
 - Historic and recent crests



Floodplain Permitting



Why do we issue permits?

- Permits are a tool to help protect property owners as well as governmental entities
- May be required by federal, state, local agencies
 - Depending on activity



Environmental Permits - KY

- Kentucky One Stop
 - Environmental Licenses/Permits
 - Natural Resource Management
 - Environmental Protection
 - Public Utilities
 - Endangered and Rare Species
 - Conservation

<http://onestop.ky.gov/start/Pages/environmental.aspx>



Environmental Protection

- KY Department for Environmental Protection
 - Division for Air Quality
 - Regulates air contaminant sources
 - Division of Waste Management
 - Regulates and assists with recycling, Superfund sites, solid waste, underground storage tanks, and hazardous waste products
 - Division of Water
 - Regulates sewer/waste discharge into KY waters, withdrawal of water exceeding 10,000 gallons per day, construction and physical disturbance activities along streams and other water-related activities



State Floodplain Permitting

- Kentucky Division of Water (KDOW) Floodplain Management section has the primary responsibility for the approval or denial of proposed development and other activities in the 1% annual chance floodplain of all streams in the Commonwealth
 - KDOW Floodplain Permit Application
- Typical activities permitted are: dams, bridges, culverts, residential and commercial buildings, placement of fill, stream alterations or relocations, mining, dredging, small impoundments, and water and wastewater treatment plants
- Activities that result in physical disturbances to wetlands or streams may also require a Water Quality Certification

State Floodplain permitting

- Permits required by KRS 151
 - [KRS 151.250](#), establishes the requirements for obtaining a floodplain development permit
 - [KRS 151.280](#), establishes penalties for commencing without a permit and requires notification for any deviations in permitted activities
 - [KRS 151.320](#), requires the judge executive of each county or the mayor or chief executive officer of each city to concurrently enforce with the cabinet, within their respective counties and cities, the provisions of [KRS 151.250](#) or [151.280](#) and the rules and regulations issued thereunder.
- Applicable regulations in [401 KAR 4:060](#)

KDOW Basic Floodplain Permitting Requirements

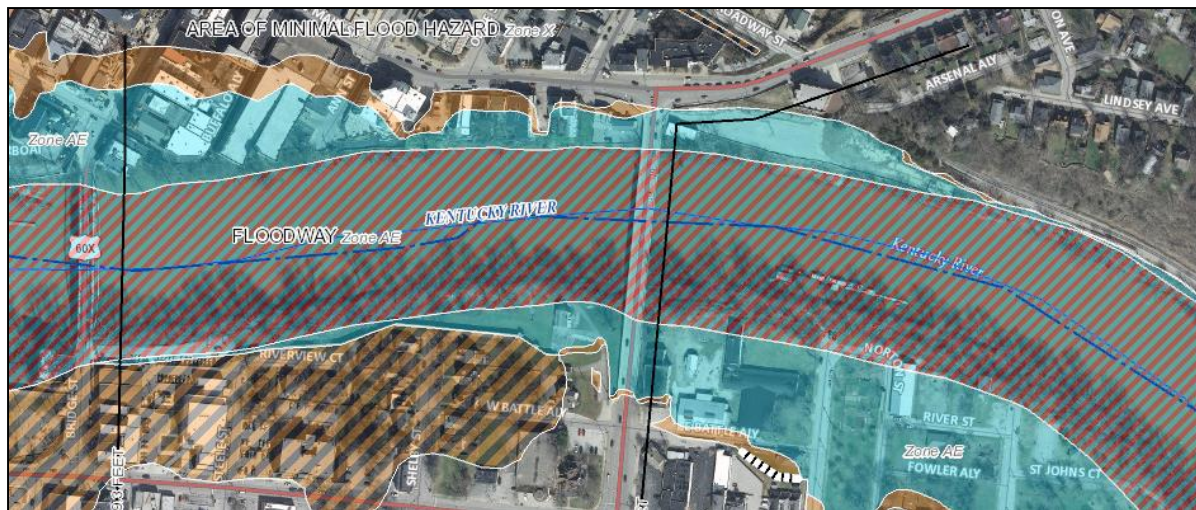


Administration

- With some exceptions, state floodplain permits are required for development along or across a stream
 - One square mile drainage area or greater
- A state and local floodplain permit is required for all construction activity in the Special Flood Hazard Area (SFHA) or that area inundated by the 1-percent annual chance flood.
 - SFHAs are designated as A and AE zones on the community's Flood Insurance Rate Maps (FIRMs).
- Local floodplain ordinances may be more stringent than state and federal regulations

Development in Floodways

- Nothing may be placed within a floodway that will cause any rise in Base Flood Elevation (BFE)
 - Engineering analysis required
- In A Zone SFHAs (no floodway identified), proposed encroachments (construction, fill, etc.) must not result in more than one foot increase in BFE



Residential Development / Substantial Improvement in SFHAs

- The lowest floor of any new or substantially improved structure (including basement) must be elevated to or above the BFE
- Fully enclosed areas below the lowest floor require at least a minimum of two openings having a total net area of not less than 1 square inch per square foot of enclosed area
 - The bottom of the openings shall be no higher than 1 foot above grade
- The applicant must submit an Elevation Certificate to the floodplain administrator when the building foundation is complete

Manufactured Homes in SFHAs

- For a manufactured home outside of an existing manufactured home park or subdivision, the requirements are the same as for site-built homes
 - Manufactured homes must be anchored to a permanent foundation
- Within an existing manufactured home park or subdivision the community has the option of either requiring the home to be elevated at or above the BFE; or elevated to at least 36 inches above grade
- In the event of substantial damage (over 50 percent of pre-damage value), home must be elevated to or above the BFE



Nonresidential Development in SFHAs

- The building must be elevated to or above the BFE
- In lieu of elevation, the building may be floodproofed to a minimum of 1 foot above the BFE
 - If floodproofed, the applicant must submit a Floodproofing Certificate certified and stamped by a professional engineer or architect
 - FEMA Form 086-0-34

Tips for State Floodplain Permits

- Note: Application for permit to construct along or across a stream and Water Quality Certification are the **same**
 - A stormwater permit may also be required

APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM AND / OR WATER QUALITY CERTIFICATION

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows or adversely impact water quality. *If the project involves work in a stream, such as bank stabilization, dredging or relocation, a 401 Water Quality Certification (WQC) from the Division of Water will be required.* This completed form will be forwarded to the Water Quality Branch for WQC processing. The project may not start until all necessary approvals are received from the KDOW. For questions concerning the WQC process, contact the WQC section at 502/564-3410.

If the project will disturb more than 1 acre of soil, A Notice of Intent for Storm Water Discharges will also be required. Both forms must be returned to the Floodplain Management Section of the Division of Water.

- Also note: If a state floodplain permit is issued, a local permit is also required
 - If not, state permit is **null and void**

<http://water.ky.gov/floodplain/Documents/Floodplain%20Coordinators%20%20and%20Community%20Database.pdf>



Tips for State Floodplain Permits

- Provide site map and FIRM of proposed site
- Provide latitude/longitude of proposed site
 - Submit site and development plans
- Explain type of development (fill, structure, streambank stabilization, etc.)
- Provide public notice
- Provide proof of easement rights
 - Owner/permittee initial/acknowledgement
- Owner/permittee signature present

Parting thoughts...

- Floodplains are sensitive, dynamic areas
- Floodplain management is key to community resilience
 - Includes structural, non-structural, regulatory, mitigation, education, and outreach components
- Extensive resources available

Contact Info

- Alex VanPelt, CFM
 - Kentucky NFIP Coordinator

alex.vanpelt@ky.gov

(502) 782-7120 (Direct Line)

Division of Water

300 Sower Blvd., 3rd Floor

Frankfort, KY 40601



Questions

